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1 A process of treating a metallic bone implant consisting essentially of treating
2 the metallic bone implant with a solution of hydrofluoric acid, which solution has a pH in the
3 range of 1.6 to 3.0.

1 2 A process of treating a metallic bone implant consisting essentially of
2 treating the metallic bone implant with a solution of hydrofluoric acid in which the
3 concentration of hydrofluoric acid is greater than 0% and up to 3%.

1 3. A process as claimed in claim 2 in which the concentration of hydrofluoric
2 acid is 0.1% to 2.0%.

1 4. A process as claimed in claim 2 in which the concentration of hydrofluoric
2 acid is 0.2% to 2.0%.

1 5. A process as claimed in claim 2 in which the concentration of hydrofluoric
2 acid is approximately 0.2%.

1 6. A process as claimed in claim 1 in which the treatment is carried out for a
2 period of at least 10 seconds.

1 7. A process as claimed in claim 6 in which the treatment is carried out for a
2 period of 10 seconds to 2 minutes.

1 8. A process of treating a metallic bone implant consisting essentially of
2 treating the metallic bone implant with an aqueous solution of hydrofluoric acid in which
3 the concentration of hydrofluoric acid is 0.1% to 2.0% at room temperature for a period
4 of up to 3 minutes.

1 9. A process as claimed in claim 8 in which the concentration of hydrofluoric
2 acid is 0.2% to 2.0%.

1 ~~10.~~ A process of treating a metallic bone implant consisting essentially of
2 treating the metallic bone implant with an aqueous solution containing fluoride ions in a
3 concentration of greater than 0% and up to 3%, said aqueous solution being free from
4 sodium and sodium ions.

1 11. A metallic bone implant treated according to a process as claimed in claim 1.

1 12. A metallic bone implant as claimed in claim 11, which implant
2 precipitates calcium ions from a saturated solution of calcium phosphate.

1 ~~13.~~ A metallic implant adapted for osseointegration in bone tissue,
2 characterized in that the surface of said metallic implant contains one or both of fluorine
3 and fluoride ions in an amount equivalent to that obtained by means of treatment of said
4 implant surface with a 0.2% aqueous solution of hydrofluoric acid at room temperature
5 for 10-15 seconds.

1 14. Metallic implant according to claim 13, characterized in that said metallic
2 implant is made of commercially pure titanium or an alloy of titanium.

1 15. The metallic implant according to claim 14, characterized in that the
2 surface of said metallic implant contains one or both of fluorine and fluoride ions in an
3 amount equivalent to that obtained by means of a treatment with a 0.2% aqueous solution
4 of hydrofluoric acid at room temperature for 30 seconds.

1 ~~16.~~ A process of treating a metallic bone implant consisting essentially of
2 treating the implant with a solution of hydrofluoric acid which has a pH in the range of
3 1.6 to 3.0 for a duration sufficient for the implant to be able to promote a greater degree
4 and strength of bone tissue contact therewith than an untreated implant after a
5 predetermined implantation time in a bone tissue structure.

1 17. A process of treating a metallic bone implant consisting essentially of
2 treating the implant with a solution of hydrofluoric acid which has a concentration of
3 hydrofluoric acid greater than 0% and up to 3% for a duration sufficient for the implant to
4 be able to promote a greater degree and strength of bone tissue contact therewith than an
5 untreated implant after a predetermined implantation time in a bone tissue structure.

6 18. A process of treating a metallic bone implant consisting essentially of
7 treating the implant with an aqueous solution which contains fluoride ions in a
8 concentration greater than 0% and up to 3% and is free from sodium and sodium ions for
9 a duration sufficient for the implant to be able to promote a greater degree and strength of
10 bone tissue contact therewith than an untreated implant after a predetermined
11 implantation time in a bone tissue structure.

12 19. The process of claim 2 wherein the concentration of hydrofluoric acid is
13 greater than 0.01%.

14 20. A process as claimed in claim 1 in which the surface of the metallic bone
15 implant after the treatment with the hydrofluoric acid solution has essentially the same
16 morphology as the surface of the implant before said treatment.

17 21. A process as claimed in claim 2 in which the surface of the metallic bone
18 implant after the treatment with the hydrofluoric acid solution has essentially the same
19 morphology as the surface of the implant before said treatment.

20 22. A process as claimed in claim 8 in which the surface of the metallic bone
21 implant after the treatment with the hydrofluoric acid solution has essentially the same
22 morphology as the surface of the implant before said treatment.

23 23. A process as claimed in claim 10 in which the surface of the metallic bone
24 implant after the treatment with the aqueous solution containing fluoride ions has
25 essentially the same morphology as the surface of the implant before said treatment.

1 24. A process as claimed in claim 16 in which the surface of the metallic bone
2 implant after the treatment with the hydrofluoric acid solution has essentially the same
3 morphology as the surface of the implant before said treatment.

1 25. A process as claimed in claim 17 in which the surface of the metallic bone
2 implant after the treatment with the hydrofluoric acid solution has essentially the same
3 morphology as the surface of the implant before said treatment.

1 26. A process as claimed in claim 18 in which the surface of the metallic bone
2 implant after the treatment with the aqueous solution containing fluoride ions has
3 essentially the same morphology as the surface of the implant before said treatment.

1 27. A process as claimed in claim 1, wherein said metallic bone implant has a
2 surface layer constituted by a metallic oxide.

1 28. A process as claimed in claim 2, wherein said metallic bone implant has a
2 surface layer constituted by a metallic oxide.

1 29. A process as claimed in claim 8, wherein said metallic bone implant has a
2 surface layer constituted by a metallic oxide.

1 30. A process as claimed in claim 10, wherein said metallic bone implant has
2 a surface layer constituted by a metallic oxide.

1 31. A process as claimed in claim 16, wherein said metallic bone implant has
2 a surface layer constituted by a metallic oxide.

1 32. A process as claimed in claim 17, wherein said metallic bone implant has
2 a surface layer constituted by a metallic oxide.

1 33. A process as claimed in claim 18, wherein said metallic bone implant has
2 a surface layer constituted by a metallic oxide.

1 34. A process as claimed in claim 27, wherein said metallic bone implant is
2 constituted by titanium or a titanium alloy, and said metallic oxide is a titanium oxide.

1 35. A process as claimed in claim 28, wherein said metallic bone implant is
2 constituted by titanium or a titanium alloy, said metallic oxide is a titanium oxide.

1 36. A process as claimed in claim 29, wherein said metallic bone implant is
2 constituted by titanium or a titanium alloy, and said metallic oxide is a titanium oxide.

1 37. A process as claimed in claim 30, wherein said metallic bone implant is
2 constituted by titanium or a titanium alloy, and said metallic oxide is a titanium oxide.

1 38. A process as claimed in claim 31, wherein said metallic bone implant is
2 constituted by titanium or a titanium alloy, and said metallic oxide is a titanium oxide.

1 39. A process as claimed in claim 32, wherein said metallic bone implant is
2 constituted by titanium or a titanium alloy, and said metallic oxide is a titanium oxide.

1 40. A process as claimed in claim 33, wherein said metallic bone implant is
2 constituted by titanium or a titanium alloy, and said metallic oxide is a titanium oxide.

1 41. A process as claimed in claim 1, comprising a further step, performed after
2 said treatment with the hydrofluoric acid, wherein the implant is treated with a solution
3 comprising calcium ions.

1 42. A process as claimed in claim 2, comprising a further step, performed after
2 said treatment with the hydrofluoric acid, wherein the implant is treated with a solution
3 comprising calcium ions.

1 43. A process as claimed in claim 8, comprising a further step, performed after
2 said treatment with the hydrofluoric acid, wherein the implant is treated with a solution
3 comprising calcium ions.

1 44. A process as claimed in claim 10, comprising a further step, performed
2 after said treatment with the hydrofluoric acid, wherein the implant is treated with a
3 solution comprising calcium ions.

1 45. A process as claimed in claim 16, comprising a further step, performed
2 after said treatment with the hydrofluoric acid, wherein the implant is treated with a
3 solution comprising calcium ions.

1 46. A process as claimed in claim 17, comprising a further step, performed
2 after said treatment with the hydrofluoric acid, wherein the implant is treated with a
3 solution comprising calcium ions.

1 47. A process as claimed in claim 18, comprising a further step, performed
2 after said treatment with the hydrofluoric acid, wherein the implant is treated with a
3 solution comprising calcium ions.

1 48. A process as claimed in claim 34, comprising a further step, performed
2 after said treatment with the hydrofluoric acid, wherein the implant is treated with a
3 solution comprising calcium ions.

1 49. A process as claimed in claim 35, comprising a further step, performed
2 after said treatment with the hydrofluoric acid, wherein the implant is treated with a
3 solution comprising calcium ions.

1 50. A process as claimed in claim 36, comprising a further step, performed
2 after said treatment with the hydrofluoric acid, wherein the implant is treated with a
3 solution comprising calcium ions.

1 51. A process as claimed in claim 37, comprising a further step, performed
2 after said treatment with the hydrofluoric acid, wherein the implant is treated with a
3 solution comprising calcium ions.

1 52. A process as claimed in claim 38, comprising a further step, performed
2 after said treatment with the hydrofluoric acid, wherein the implant is treated with a
3 solution comprising calcium ions.

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1 53. A process as claimed in claim 39, comprising a further step, performed
2 after said treatment with the hydrofluoric acid, wherein the implant is treated with a
3 solution comprising calcium ions.

1 54. A process as claimed in claim 40, comprising a further step, performed
2 after said treatment with the hydrofluoric acid, wherein the implant is treated with a
3 solution comprising calcium ions.

1 55. A metallic implant adapted for osseointegration in bone tissue,
2 characterized in that the surface of said metallic implant contains one or both of fluorine
3 and fluoride ions in an amount equivalent to that obtained by means of treatment of said
4 implant surface with a 0.2% aqueous solution of hydrofluoric acid at room temperature
5 for a period of 10 seconds to 2 minutes.

1 56. A metallic implant according to claim 35, wherein said metallic implant is
2 made of commercially pure titanium or an alloy of titanium.

1 57. A metallic implant adapted for osseointegration in bone tissue,
2 characterized in that the surface of said metallic implant contains one or both of fluorine
3 and fluoride ions in an amount equivalent to that obtained by means of treatment of said
4 implant surface with a 0.2% aqueous solution of hydrofluoric acid at room temperature
5 for a period of 10 seconds to 2 minutes immediately followed by rinsing with water.

1 58. A metallic implant according to claim 57, wherein said metallic implant is
2 made of commercially pure titanium or an alloy of titanium.

1 59. A metallic implant according to claim 13, wherein the surface of said
2 implant also contains calcium.

1 60. A metallic implant according to claim 14, wherein the surface of said
2 implant also contains calcium.

1 61. A metallic implant according to claim 55, wherein the surface of said
2 implant also contains calcium.

1 62. A metallic implant according to claim 56, wherein the surface of said
2 implant also contains calcium.

1 63. A metallic implant according to claim 57, wherein the surface of said
2 implant also contains calcium.

1 64. A metallic implant according to claim 58, wherein the surface of said
2 implant also contains calcium.

1 65. A process as claimed in claim 1, which improves the biocompatibility of
2 in bone tissue.

1 66. A process as claimed in claim 1, which improves the rate of bone tissue
2 attachment of said metallic bone implant.

1 67. A process as claimed in claim 2, which improves the biocompatibility of
2 in bone tissue.

1 68. A process as claimed in claim 2, which improves the rate of bone tissue
2 attachment of said metallic bone implant.

1 69. A process as claimed in claim 8, which improves the biocompatibility of
2 in bone tissue.

1 70. A process as claimed in claim 8, which improves the rate of bone tissue
2 attachment of said metallic bone implant.

1 71. A process as claimed in claim 10, which improves the biocompatibility of
2 in bone tissue.

1 72. A process as claimed in claim 10, which improves the rate of bone tissue
2 attachment of said metallic bone implant.

1 73. A process as claimed in claim 16, which improves the biocompatibility of
2 in bone tissue.

1 74. A process as claimed in claim 16, which improves the rate of bone tissue
2 attachment of said metallic bone implant.

1 75. A process as claimed in claim 17, which improves the biocompatibility of
2 in bone tissue.

1 76. A process as claimed in claim 17, which improves the rate of bone tissue
2 attachment of said metallic bone implant.

1 77. A process as claimed in claim 18, which improves the biocompatibility of
2 in bone tissue.

1 78. A process as claimed in claim 18, which improves the rate of bone tissue
2 attachment of said metallic bone implant.